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REPORT

ON THE

PHILLIPSBURG FARNHAM & YAMASKA

RAILWAY

BY

JOHN FOSTER, C. E.



ST. HYACINTHE PRINTING ESTABLISHMENT.

1872

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TO THE DIRECTORS OF THE PHILLIPSBURG,
FARNHAM AND YAMASKA RAILWAY COM-
PANY.

GENTLEMEN.

In accordance with the instructions which I received from you at your meeting at Bedford, I immediately proceeded to examine the country between Phillipsburg and

ERRATA.

- Page 8.—Cereals "88,299" tons read "89,299" tons.
" 8.—12 lines from the bottom instead of "calculated" read "calculate"
" 8.—(Their weight with baggage at 200 lbs. per hea will be 7000 tons)
Total weight of 72,014 tons producing.....
" 9.—Line 20, for "all" read "nearly all of which"
" 10.—Line 6, for "Leggo" read "Legge"

the crossing of the Montreal and Vermont Junction Line, distant from Phillipsburg about six miles and a half; at this point such merchandise or passengers as are destined for the States, by rail, will be transhipped from one line to the other; all intended to go by water to any of the ports on Lake Champlain or New-York will be carried on to Phillipsburg. The same description of country continues down to Bedford where we meet with the first river passage of importance. A deviation as shown by the blue line on the general plan, has been studied at this point, in order to meet the views of some of the inhabitants of the upper part of the village. A profile of this deviation shows the great difference in level and consequently in earthworks, the increased extent of bridge and Trussel work, and an increased length of road of as near as possible three quarters of a mile, the cost of this deviation would be \$16,575. From Bedford the line will pass close to the

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TO THE DIRECTORS OF THE PHILLIPSBURG,
FARNHAM AND YAMASKA RAILWAY COM-
PANY.

GENTLEMEN.

In accordance with the instructions which I received from you at your meeting at Bedford, I immediately proceeded to examine the country between Phillipsburg and the Landing opposite Three-Rivers, and I have now the honor to submit to you a plan and profile of the line which I have selected as the one most in conformity with what I believe to have been your views and intentions.

The grades and curves throughout and the general level of the country are highly favourable, but there are some formidable bridges and not a few of them. By an examination of the profile and plan submitted, the details of the *Tracé* will be perfectly understood.

At Phillipsburg a wharf will be established for the reception and delivery of all goods and passengers going by water from this point to any of the various ports on the Lake Champlain.

From Phillipsburg the road as indicated by the red line, will run with very gentle grades up to the first station at the crossing of the Montreal and Vermont Junction Line, distant from Phillipsburg about six miles and a half; at this point such merchandise or passengers as are destined for the States, by rail, will be transhipped from one line to the other; all intended to go by water to any of the ports on Lake Champlain or New-York will be carried on to Phillipsburg. The same description of country continues down to Bedford where we meet with the first river passage of importance. A deviation as shown by the blue line on the general plan, has been studied at this point, in order to meet the views of some of the inhabitants of the upper part of the village. A profile of this deviation shows the great difference in level and consequently in earthworks, the increased extent of bridge and Trussel work, and an increased length of road of as near as possible three quarters of a mile, the cost of this deviation would be \$16,575. From Bedford the line will pass close to the

village of Mystic, where there is established a considerable manufactory for Agricultural tools, and also a Cheese factory, these branches of industry would necessarily increase with the facilities of railway communication. It will be seen by the profile that the grades here are rather heavy in one or two instances, but very short. From this point the line will run directly for Farnham passing through a wood about five miles long, in the centre of which or nearly so, are some saw mills, having at the present moment the very worst possible roads for the conveyance of their produce; through the whole of this district the country is very favorable; at the mills in question called Saxe's Mills, there will be a bridge of about 40 feet to cross the stream there. From Saxe's Mills to West Farnham the same general uniformity of level continues, but at West Farnham the passage of the Yamaska will be costly and the approaches to the River steep for a few hundred feet only; at this point there will be a junction with the Stanstead and Shefford Road and South Eastern Counties Railway, where a station of very considerable importance for all three lines must quickly develop itself.

Hence the *Tracé* is carried directly for L'Ange-Gardien, St. Paul d'Abbottsford, St. Pie, and St. Hyacinthe.

There are some works of importance in this district, but the general level of the surface is favourable. A deviation however from West Farnham to St. Pie, is quite practicable, if circumstances should in your opinion render it desirable. This deviation is shown on the plan by a blue line, passing direct from West-Farnham, and following the Yamaska River to opposite St. Cesaire and then to St. Pie; the increased length of the line will be quite inconsiderable and the works to be executed but slightly augmented, the cost of this deviation would not exceed \$6000 and the country through which it would pass is highly cultivated throughout.

At St. Pie the line will again cross a branch of the Yamaska or Black River and run nearly straight for the Grand Trunk road opposite St. Hyacinthe.

I have with much regret been obliged to leave St. Dominique out of the line of road. There is a very considerable and important trade between that village and district and St. Hyacinthe, which will pay well for the construction of a branch to that place later, but the profile which I submit with this, between the lime-kilns at the upper part of the village and the bog at the foot of the hill, imposes an impracticable passage in the middle of the proposed line. The

road may be developed over a distance nearly half as long again as that shown by the profile, but then there would exist an incline of one in forty, and three quarters of a mile long. This is so greatly in excess of any other grade on the whole road, that trains would either have to be divided, or extra Locomotive power would have to be always in readiness for each train, or a fixed engine for drawing the traffic up. Either of these systems would be very expensive, the cause of great delay, in fact a perfect deformity and obstruction to the proper working of the line. For these reasons and following the tracé indicated by the red line, I have considered it in a commercial point of view, as an impracticable passage.

Arriving opposite St. Hyacinthe, there will be some very expensive works to reach the Grand Trunk Station, on the West side of the River; nevertheless St. Hyacinthe is a most important place for the Company to have a station at. It is the chef-lieu of a very large judicial District, of the Roman Catholic Dioces, the seat of an important College, Convent and Hospital, and has a market for animals, grain and all agricultural produce second only to Montreal and Quebec. Shoe manufacturers, tanners, carriage works and an important and increasing foundry Establishment are all in operation, besides presenting the great feature of forming a junction with the Grand Trunk at a point affording the closest communication with Montreal the Commercial Capital of the Dominion. All these are great advantages for the Company, and so many powerful reasons for enlisting the efforts of the Town in support of the enterprise; for a route, which would cost 25,000 dollars less, can be obtained by passing from St. Pie, along the hills leading to St. Dominique, and back to near Ste. Rosalie, but this tracé would still present very heavy and objectionable grades, although not of a nature to interfere with the traffic to the same extent as the incline before referred to. From St. Hyacinthe the red tracé runs through the parishes of Ste. Rosalie, St. Simon, St. Hugues, River David, St. François du Lac, St. Thomas de Pierreville, La Baie, Nicolet, St. Grégoire to Doucett's Landing opposite Three Rivers. By reference to the plan and profile it will be seen that in this section of the road, the passages of the Rivers St. François and Nicolet will be very formidable and expensive works, and can only be reduced by passing several miles higher up the river which will diminish the length of the bridges, and shorten the line by three miles. A deviation with this view is submitted for your consideration further on. I

have included in the estimate for these bridges over the St. Francis and Nicolet rivers the cost of a common cart road under the railroad.

After leaving St. Hugues a blue line indicates another deviation in the direction of St. Marcel and opposite St. Aimé returning to St. François; this deviation would cost \$8,000, but it would be very productive to the Company from the fact that at least one half of the County of Richelieu would be brought within the influence of the line, which district at the present time has no outlet for its produce.

The most important deviation however in the whole line is that which may be made between St. Hugues and Doucett's Landing.

A straight line may be run between these two points as shown by the blue line on the plan, and the cost of construction would be diminished between St. Hugues and Doucett's Landing by \$30,000. Nor would the traffic of the Company suffer in the least by leaving St. François, St. Thomas, La Baie and Nicolet a few miles from the road; establishments and small towns would at once spring up along the line and instead of having a country on only one side, it would pass through the middle of the very district supporting all the villages just named, and the traffic from which although more distant must still come to the railroad.

At Doucett's Landing opposite Three Rivers a pier will have to be constructed in accordance with the specification of works to be executed; from which wharf the Railway lumber waggon will be run into barges, and the lumber at Three Rivers will be loaded direct into the cars and be delivered on the railroad without any handling whatever, more than loading into a common barge.

I believe in following the tracé by the red line as described, I have selected the road to which you give the preference, at the same time I have considered it my duty, and I believe your wish, that I should suggest any deviations that might appear useful or practicable.

The estimate resulting from these studies has been prepared for a line of three feet gauge, which gauge is recommended after a very careful examination of the resources of the country, of the probable amount of the traffic likely to come upon the line, and the returns likely to be realised. Details upon these points I have given further on in this report, by reference to which it will be seen that a three feet gauge must not be exceeded in order to admit of the construction of this line at such a price as will

make it a good commercial speculation, and at the same time afford abundant accommodation for all the increased traffic which is sure to follow the construction of a railway.

No doubt for some little time there was a prejudice against narrow guage lines, but after a thorough investigation of their merits in Europe and America, the advantages shown to belong to them have crushed all opposition and they are being extended upon an enormous scale in the United States in Europe and in Asia; in Europe I would mention the three countries of Russia, Sweden and Norway as affording an exact and practical illustration of their perfect safety and applicability in and to countries which can boast of as much frost and snow as falls to our lot here.

The experiments made in England as to the capacity, and advantage of the narrow guage were in the presence of persons of the highest position, and the London "Times" reporter in commenting upon them in March 1870, before setting forth the facts established, says "The statements we are about to make do not rest solely on our authority. The various commissioners and other observers met together under the Presidency of the Duke of Sutherland, compared their notes point by point, and came to a perfect agreement as to the facts which they were prepared to vouch for. Our facts, therefore, have the authority of documents, signed by the Duke of Sutherland as chairman of the different meetings which were held, by the Russian Imperial Commissioners, by the commissioners of our Indian Government, by Capt. Tyler of the Board of Trade who acted as Secretary, etc, etc," in addition to these personages mentioned by the Times were Engineers from most of the European Governments.

The same reporter in speaking of the great cost of railways in England says "For one thing in future railways the cost of land will be immensely diminished. Time was, when the land had to be purchased at exorbitant prices, and when directors, indeed, had to fight proprietors in parliament for possession of it.

"Now the owners of land are in many instances willing to give it freely for the sake of the advantages returned to them by the railway passing through their Estates."

If this is the case in an old country where ordinary fair land is worth from 250 to \$500 per acre (arpent) how much stronger must be the reason for such assistance on the part of landowners in this country where the present value of the land is comparatively trifling, but where all the advantages to be derived from railway communication

are of far greater importance than in England, as before railroads were invented they had comparatively easy transport by good roads and good canals.

In France this question of narrow guage has received the formal approval of all the leading engineers; the question of security, cost, velocity and transhipment have all been thoroughly investigated and the conclusions arrived at by Mr. Eugène Flachat, Mons. Dagail and others may be briefly referred to here. On the question of security M. Dagail says: "this objection is not a technical one, and has been invented by the public who are alarmed at travelling in cars smaller, and as they say, less secure than cars on the broad guage. Nothing can be less serious than this objection. It is just as easy to have a car as perfectly secure with a three feet guage as with a road of 4 ft. 8½. They have established here (in France) cars for passengers two stories high, both stories closed at the sides, a thing much more difficult to accomplish than to make a safe car on a 3 ft. guage." On this point also the technical committee of the union of German railways in their report recommending 3 ft. and 2 ft. 6 guage lines give their opinion "that the narrow guage line offers all necessary security." Their cost in France is shown by detail estimates on the same ground to be just half the cost of a 4 ft. 8½ line. The proportion which I have always maintained will represent the difference of cost here. The velocity is from 16 to 24 miles an hour, the speed of second class (omnibus) trains in France being 18 miles.

The question of transhipment has been also thoroughly examined. It is shown on the existing narrow guage lines in France and Belgium that for merchandise in sacks it cost 2 to 3 cents par ton, and for general merchandise of every description the cost has never exceeded 5 cents. In closing the discussion on this subject before the society of civil Engineers in France, M. Eugène Flachat whose reputation and opinions there hold the same place that Stephenson's did in England says "To conclude, the transhipment cannot be under any circumstances opposed to the adoption of the narrow guage, no more for coals than any other merchandise. In another point of view transhipment is indispensable for the useful employment of the rolling stock."

"All these considerations show that the weakest argument against the narrow guage is the Transhipment, far from complicating the manipulations, it simplifies them.

"This objection is a phantom, it disappears before the light of facts."

We next come to the cost of transport, and on this subject I must trouble you with one other short extract from the opinions of Mr. Flachet. He had been discussing the propriety of maintaining the 4 ft. 8½ as the general gauge in France, when the amount of traffic would justify the extra cost, but when it would not, he says: "we must seek another solution to reduce the cost of transport, and if that solution becomes possible by the adoption of a gauge of 2 ft. 8 or 3 ft. 4, we must resign ourselves to it. It is probable that the best means of arriving some day or other at the ordinary gauge will be to commence by the narrow, which by diminishing the *cost of transport in the proportion of 4 to 1* will have developed the productive powers of the country." I have made this extract as it so exactly corresponds with the experiments made in England, where it was shown that upon one of the best lines in that country having a traffic greater than any other line in the world, a merchandise traffic, independant of coals and minerals, amounting to ten millions of tons per annum, that against each ton of paying weight transported, four tons of dead weight was moved, and taking an average of the English lines the dead weight was 6 or 7 tons, to one ton of paying weight. By the system of narrow gauge we absolutely annihilate this formidable disproportion between dead and paying weight, and arrive consequently at a reduction of the cost of transport in an exact proportion to the reduction of dead weight. On the line to which I have before referred, every goods waggon weighing itself 4 tons, and moving one mile, only carried one ton of merchandise or paying weight, and supposing that we carry but one ton of freight in every waggon weighing itself one ton but capable of carrying 3 tons, our saving will be in the proportion of 1 Ton of dead weight against one ton of paying, instead of 4 tons of dead weight against one ton of paying; the maintenance of the permanent way and repairs of rolling stock are all reduced in like proportion.

Economy in every shape is therefore the recommendation of the narrow gauge line, equal security up to 30 miles an hour, and with the further advantage of placing the means of railway communication within the reach of numbers of districts that could never afford to pay for a broad gauge road.

The cost of this line which will be 100½ miles from the quay at Phillipsburg to Doucett's Landing will be \$1,070,799 or \$10,680 per mile. This amount includes the purchase of land for the road and Stations, all earthworks, cuttings or

embankments, fencing, permanent way and iron rails, rolling stock, station buildings, bridges and culverts, with Telegraph and the necessary instruments for properly and effectively working the same, in fact the whole line complete in conformity with the specification accompanying this report.

The question of traffic and the probable result in a commercial point of view of the working of this line is the next and most important question, and upon which my recommendation of the 3 ft. gauge is based.

This line must be looked upon as the farmers and lumber man's line. From the table at the end of this report it will be seen that the six counties through or near which the line will pass, produce per annum in cereals, 89,299 tons, in root crops 30,478 tons, hay 82,888 tons, or a total of 202,665 tons; this was the actual produce in the year 1860 and is taken as the present produce without any augmentation. The county of Richelieu is left out, although as I have before remarked, I think the company will find it advantageous to make the deviation to St. Aimé if the parishes lower down encourage the enterprise. The proportion of this produce which I consider likely to be transported on this line is as follows:

Articles.	Quantity tons.	Proportion on rails.	Quantity on rails tons.	Price p. ton p. mile.	Number of miles.	Amount.
Cereals.....	88,299	$\frac{1}{3}$	29,766	.03	30	26,789.40
Root crops....	30,478	$\frac{1}{3}$	7,619	.03	15	3,428.55
Hay.....	82,888	$\frac{1}{3}$	27,629	.02	40	22,103.20

Besides this I calculated on 70,000 passengers per annum over a distance of 25 miles 50cts. fare 35,000

Their weight with baggage at 200 lbs. per head will be 7000 tons, or a total weight of

72,014 tons producing..... 887,321.15

The cost of transporting this at $1\frac{1}{2}$ cents per ton per mile for merchandise and $\frac{1}{3}$ of the total receipts for passengers, amounts to 44,840.40

or about 51 per cent..... 44,840.40

Balance..... 842,480.75

The amount of produce which I have assumed in the foregoing figures as likely to come upon the road, is very

much less than that generally allowed in calculations of this description and particularly as I have admitted no increase whatever for the last twelve years, and moreover the large proportion of all produce coming from the counties of St. Hyacinthe, Bagot, Yamaska, Nicolet and Three Rivers will go over a far greater distance than I have assumed, as the average center of all these counties is about 70 miles from the States' end of the line.

Besides the omission of the county of Richelieu you will notice that I have made no allowance for the county of Drummond, nor for any back traffic whatever from the upper to the lower end of the line, nor for a variety of other items which are certain to come on the road, viz. live stock of all descriptions, beef and pork in barrels, eggs and poultry, cheese and butter, maple sugar, wool, fire wood, hemp and flax, cloth and linen, subsidy for carrying the mails (for no part of the Dominion can have worse postal accommodation, than the counties through which the lower part of this line will pass), tolls on the large bridges, small parcels, &c., &c., all of which articles it will be seen by the table annexed are produced on a considerable scale and which will be increased three or four fold as soon as a cheap communication is established to the best markets, which at present can only be reached at a price which crushes both the manufacturing and agricultural energy of the people, and prevents the developement of the country.

I would earnestly entreat the attention of the Farmers of this country to the following important facts. At the present moment it costs the farmer at least 30 cents to move one ton, or 50 bushels of grain one mile; by the rails, it will cost 3 cents to do the same work; the difference will be as great for potatoes and root crops taking the weight per bushel to be about the same, besides the advantage of being able to send these things, long distances without spoiling, owing to the rapidity of transit. Hay will cost 2 cents per ton per mile, or can be transported the whole length of the line, 100 miles for \$2 per ton.

All through the spring months, at Phillipsburg, hay was worth \$16 per ton, this alone would enormously increase the value of the hay producing farms; and this difference in price between the markets of the States and the value of produce along the line, is not an accidental circumstance, but always exists, and would all pass into the pockets of the producers in this country if he could reach those markets. Surely with these figures and facts, and the experience of other lines in proof of them, the sophistry of

popularity hunters and the interests of some few, cannot be allowed to block the road leading so inevitably to general prosperity.

Lumber is another important item which has now to be considered.

I find in the elaborate report prepared by Chas. Leggo, Esq., Engineer in chief to the Montreal and Ottawa City Junction Railway, that the quantity of Lumber cut annually at Ottawa and Hull amounts to 240,000,000 of feet, and of that about 190,000,000 feet go to the states markets, part by Lake Champlain, reaching their destination via Montreal and Richelieu River, the other portion by the Ottawa and St. Lawrence Railway, the loaded cars being ferried across the St. Lawrence at Prescott to the Ogdensburg Northern Road and afterwards on the Burlington. A glance at the map will show the comparatively easy route which our line will afford for lumber coming from the immense forests at the back of Three Rivers, as well as from the St. Francis and Nicolet Rivers, where at the present time mills are standing, or but comparatively little trade doing, in consequence of the difficulty and cost of getting their produce to market.

The line of railway proposed will exactly afford the required facilities for developing these great tracts of wood lands, by providing the most direct and cheapest communication with the Lake Champlain, the point by which all Lumber must pass, whether direct for Boston or New-York or the intermediate depots of Burlington, Whitehall, Troy or Albany.

The cost of transport for Lumber is the next point. In estimating the cost of transport for general merchandise, I have made the very liberal allowance of $1\frac{1}{2}$ cents per ton per mile; for lumber this will be reduced to one half, for the following reason: 1st. because the bulk of all this will pass over nearly the whole length of the line, the whole quantity estimated will at any rate come from the lower side of the St. Francois River, and in all probability, the far greater proportion from Three Rivers. To avoid all transhipment at this point, the trucks will be so constructed that they can be lifted from their wheels by means of a crane at the end of the jetty at Doucett's Landing and the body of the waggon only will be placed in a barge, the lumber being loaded into them at Three Rivers with exactly the same labor that it would require to load the barge; the bodies of these trucks with their cargo, will be lifted again by the same mechanical means from the barge, and placed

on their wheels on the railroad, or as before observed they may be run bodily into the barges, and when loaded drawn out again.

2o. Because the waggon will be fully loaded, each carrying 2000 ft. of lumber or about 3 tons of paying weight against only 1 Ton of dead weight, which will be the weight of the truck required to carry this quantity.

3o. Because, the cargo will always be made up equal to the full power of the locomotive, and as a speed of 10 or 12 miles per hour will be quite sufficient for these trains, a much larger amount of tonnage will be carried for the same cost of fuel wear and tear of road and rolling stock, than by the trains running 20 miles an hour.

4o. The liability of the Company for damage to this description of traffic is reduced to the minimum.

Taking then the cost of general merchandise at .015cts per ton per mile, the cost of lumber will be .0075c, and as 1000ft. of lumber on an average will weigh $1\frac{1}{2}$ Ton the cost per 1000 ft. will be .0113 cts per mile. From Doucett's Landing to the quay at Phillipsburg will be 100 miles, and the cost per 1000 feet for this distance will be \$1.13cts., but to this I add 60 per cent which will bring the tariff of the Company to .0180 per m. per mile or \$1.80 from Doucett's Landing to Lake Champlain.

The Richelieu Navigation cannot compete with these prices, putting altogether aside its uncertainty, its long duration and the limited period of the year that it is open.

Supposing therefore that from the district north of Three Rivers, and the St. Francis and Nicolet Rivers, we only get $\frac{1}{4}$ th part of what is now sent from Ottawa to the States, this will represent 30,000,000 feet per annum; and there is no reason why this quantity should not be greatly exceeded, for there is no quarter of the Dominion from which the Lake Champlain can be reached so cheaply as that within reach of the proposed line. These 30 million feet per annum conveyed over say 80 miles of line, at .018 ct. per m. per mile, will give \$1.44 for the 80 miles, and this by 30,000 a revenue of..... 43,200

Less the charges against it of 80 miles x .0113 x 30,000..... 27.120

Leaving..... \$16.080
Add to this the balance on general merchandise..... 42.480

and we have, total balance..... \$58.560

equal to a total value amount of traffic of.....	130,520
Costing.....	71,960

Balance as above..... \$58,560

No doubt a much more favorable statement might have been prepared, had I included the many sources of income which are less certain than those upon which I have based my estimate, but which under all circumstances must still be important; that a rapid increase will take place, there can be no doubt, an immense quantity of land now uncultivated will be cleared, and every tree which is cut in clearing will become valuable.

Taking the whole district through which the line is proposed to pass, only one half the land is under cultivation, and taking again the three counties the furthest removed from the markets, and there the proportion of uncultivated land is the greatest. In the three counties of Nicolet, Yamaska and Bagot it amounts altogether to as nearly as possible 3-5ths of the whole area.

For the realisation of the immense benefits which this road will confer on all the parishes and counties through which it will pass, a most insignificant amount is required from the proprietors, an amount indeed which will never leave the parishes at all, for deducting from the cost of the line such materials as cannot be produced on the road there will remain a balance for labour and other items, far greater than the whole bonus that the parish will be asked to subscribe and the whole of this will be spent in cash during the two years of construction.

Nor does it appear to me that it will take much time after the line is opened to realise the figures I submit to you. The farm produce is taken as it existed twelve years ago and it will require very little time for the farmer to abandon his prejudices, if he has any, and find his way to the market that will give him the best price; the construction of the line from Three Rivers to the Lumber districts north of that town will in all probability be finished before this is, and the States must be the market for any amount of lumber they can manufacture, and this railroad must inevitably be the means of transport for that lumber.

These I consider to be the main sources of the future income of the Company and these only have I considered.

I have endeavoured to explain some of the advantages and benefits which I consider must result from the construction of this line to the farmers and population generally in the districts through which it will pass; as well as

to the Town of Three Rivers opposite the Northern Terminus, in consequence of the cheap and direct communication which it will afford to the States at all seasons of the year for the almost unlimited quantity of lumber and other produce which the country at the back of that town is capable of producing.

I believe it will also be most satisfactory to the country through which it is projected to know that by the adoption of the economical system of construction proposed, the advantages to be derived from the working of the enterprise will without doubt be as satisfactory to the Shareholders in the Company, as to the producers and merchants of every denomination throughout its entire length.

I have the honor to be,

Gentlemen,

Yours most obediently,

JOHN FOSTER.

St. Simon, October 15th 1872.

EXTRACTS FROM THE CENSUS OF 1861.

Counties.	Cereals bushels.	Root crops bushels.	Hay tons.	Butter lbs.	Cheese lbs.	Beef and pork tons	Maplesugar lbs.
Missisquoi.	613,096	302,041	23,879	869,159	195,117	820	247,406
Rouville.	653,963	200,787	12,937	263,389	2,729	482	143,595
St. Hyacinthe...	701,280	144,955	6,755	154,555	614	488	128,710
Bagot.	507,483	175,882	8,433	238,409	1,504	561	187,759
Yamaska.	524,479	189,021	12,547	176,907	100	587	162,570
Nicolet.	571,642	206,412	10,347	253,409	140	483	199,542
Tons.	3,571,973	1,219,088	82,898	1,955,828	200,204	3,421	1,069,582
Richelieu.	89,299	30,477	82,898	977	100	3,421	534
Tons.	575,443	160,600	5,653	153,248	611	309	80,237
Tons.	14,386	4,015	5,653	76		309	40

EXTRACTS FROM THE CENSUS OF 1861.

Counties,	Wool lbs,	Cloth Flan- nel and Li- nen yards,	Hemp & Flax lbs,	Live stock no,	Value of Live stock dollars,	Land cul- tivated. acres,	Total area, acres,
Missisquoi.	50,920	28,608	2,945	40,639	691,237	113,714	199,144
Rouville,	50,272	80,499	33,499	47,679	668,059	109,006	155,178
St. Hyacinthe, ..	44,818	61,896	26,381	41,336	547,014	125,423	175,644
Bagot,	38,722	74,809	19,424	33,673	441,730	76,448	192,679
Yamaska,	34,300	90,289	30,252	42,831	389,386	78,366	169,889
Nicolet,	51,848	110,236	44,528	51,515	497,377	92,057	207,293
	270,880	466,237	157,039	257,693	3,243,803	595,014	1,099,827
Tons,	135		78				
Richelieu,	35,374	74,311	26,936	36,043	429,786	77,468	127,172
Tons,	17		13				